

collected 1967 Hill B
 Locality 3183 Lense World Early Pliocene (Hemphillian) collected 1967

#51924 - distal end of left tibia. *Megapalaeodus*? of *gorgon*
 unnumbered ^{incomplete} two left ulnae ~~26~~ 26 + mm; distal end humerus, prox end humerus
see data on #31618 at ^{home} yellow sheet at ^{home} ^{now}

Locality 65121 Calpistano ~~Lense~~ (Hemphillian)

NO # Podiceps ^{shaft} of left femur collected 1948
 #31617 *Gavida* - *Gavia* sp very small tip of rt. coracium collected 1965
 #31618 " " " " " " prox half ulna collected 1946
 31630 " " " " " " distal half humerus collected July 1965

31627 Vertebra (large)
 Locality 65121

31631 *Sulidae* distal end left ^{longer + shorter} ~~tibia~~ tarsus on loan Warheit collected 1965
 31636 " ? T. ? (compare also with *Mancalla*) distal femur collected Oct 22 1965
 31619 *Puffinus* sp? distal end of ulnae collected July 1965
 32331 *Alcidae* genus + sp? incomplete (prox end + part of shaft) ~~coracium~~ 1965
 31639 " *Cervinina* distal end of tarsus July 1965
 31629 * " " proximal end humerus try recent genus? collected Dec 1965

Locality 65121 ~~Mancalla~~ *Mancalla* sp.

32333 *Mancalla* ? *diegensis* left coracoid collected July 1965
 32334 " sp (larger than the above) rt coracoid collected July 1965
 32338 " " " " " " ulna " "
 32339 " " " " " " ulna " "
 32340 " " " " " " ulna " "
 32341 " " " " " " ulna " "
 31620 *Mancalla* (or *Praemancalla*) *radiata* collected July 1965 (very long) Try *Mancalla*

? 31637 } ~~Mancalla~~ sp? left + right prox femora July 1965
 ? 31638 }
 32334 *Mancalla* cf *diegensis* left tarsus July 1965 about same size
 32337 " " " " left tarsus " "
 32332 " " " " rt prox tibia " "
 32326 *Anas* - check Sheldgoose distal radius July 1965

eleven ^{more} trays of misc. scraps. doubt fully identifiable

Leisure World Locality "Hill 3A LACM 65120

Mancalla bones

Ulnae

LACM 32386 -- small } length 26.0 and 26.9 respectively length 26.1
 32387 " } prox breadth 5, 5 + 5.3 26.7 length shaft 4.9 acet
 32388 larger length 29.3 prox br, 6.2
 32389 check size length 27.7 (rounded) shaft 6.3
 32382 prox. end
 32383 dist. end
 32384 incomplete length 30.6 depth 3.5
 32385 large 51924 also

Humeri

LACM 32396 distal

Femora

LACM 32375 prox. small
 32374 distal half

Tibia

32391 dist small
 32390 prox small?
 32392 dist larger than 32390

Tarsus

32381 large (Mancalla?)
 32379-80 2 incomplete smaller than 32381 -
 32348 shaft

Leisure World locality 65121

Mancalla bones

Coracoid 32333 left coracoid
 32334 right coracoid (larger than 32333)

Ulnae

32337
 32338 larger than 32337
 32339 larger than 32337
 32340 larger than 32337
 32341 " " "
 51923 " " "

Femur

312637 and 31638 Mancalla?

Tarsus

32336 ~~size~~ (size of diegense
 32327 size of diegense

Tibia

32332 prox. size OK for diegense

Locality 3183 Hill B

unnumbered left & right ulnae
 distal end humerus right
 prox. end humerus left



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ulna 31618 from 68121 resembles *g. stellata* in size
 (probably smaller but differs in shape attaching ant art lig.
 (resembles *g. pacifica* in size of this attach)
 Differs from *g. tyneri* & *brockneri* in the attach. not as
 as broad & square, & line bordering radial depression
 ext'ly proceeds distally more gradually (more like *pacifica*)
 In *brockneri* this line goes abruptly medially

Prox br. 7.5 just below cotyloae (meas. from anterior set)
 cotyloae are eroded. Same meas in *stellata* 8.3 (# 788),
 Br. sh. ~~3.5 mm from eroded cotyloae~~ 4.8, *stellata* 4.6 & 4.7
 same meas. *g. brockneri* / a - 8.2, / b. 4.7 / *g. brockneri* is very
 short - in *pacifica* to tell length thus 31618

In general more like modern *pacifica* but smaller.

~~Caragala~~ 31617 Br. 6.55 from glenoid facet to
 posterior margin of troc. canal. Same meas in *stellata* 7.5 & 7.9

Dist Humerus 31630 Shallow ^{broad} radial impression like *pacifica*
 Br. condyles 10.75 (*stellata* 10.2 ~~10.9~~ *pacifica* 10.9)

Too much
 eroded
 for
 finger
 points

palmar surface of shaft more angular than in *pacifica*

more like *stellata*

Br. sh. x depth sh 6.0 x 7.1 same in *stellata* 5.7 x 6.7 # B' 788
pacifica 6.2 x 6.9 # B' 28

Epistepi condylar prominence less projected than either *stellata*
 or *pacifica* (probably eroded)

Tarsus 32363 *g. hypotaenae* 6.2 *stellata* 6.4 *pacifica* 6.9
 Br. sh. ~~5.9~~ 4.9 *stellata* 4.0 *pac.* 5.3

See "List LACM from Bodo" *C. J. J.*

Nov. 22, 1973

Locality 65120 -- CASE VIII-10 (5) PLIOCENE, Capistrano fm.
(see also Locality 3172, which was 65120, Hill A) Case VII-10)
This locality is Miocene)

NOTE: Many of the specimens now called 65120 were originally 65120A. Check these with ^{Loc.} 3172 and ^{Loc.} 1945.

MANCALLA small (M. milleri?)

- 2 65120A Ulnae 32386-and 32387 length 26.0 and 26.9 respectively
br. prox. 5.5 5.3 "W"

Identification based on size and depth of depression
internal to the olecranon (depression is less in M. diegensis)
Also, distally the palmar surface is slightly depressed
(more rounded in diegensis?)

- 1 65120 Radius (distal end) 32396, size seems to be M. milleri *check Paffur?*

MANCALLA larger (M. diegensis)

6 Ulnae: ~~32382 loc. 65120A~~

65120A no. 32383 distal end

65120A " 32384 eroded and lacks olecranon; length 30mm

65120A 32382 prox. half, breadth prox. 6.3mm

65120A no. 32385 Complete except broken olecranon, ~~length~~
length 30.3, breadth prox. 6.5 mm.

65120 no. 32388 practically complete, length 29.3mm, br. prox 6.2ap.

65120 no. 32389 complete, but eroded, length 27.7 mm.

3 Tibiotarsi:

no. 32390 prox. end

no. 32391 distal end also 32392 dist.

5 Tarsometatarsus

no. 32379 (loc. 65120A) shaft. Size OK for diegensis; not calif.
because the margins are raised more than in calif.)

no. 32380 (loc. 65120A) dist. tarsometatarsus, could be diegensis
but not calif.

* ✓ no. 32381 ~~distal~~ (Loc. 65120A) distal with shaft. Doubtfully
M. diegensis. Mancalla, probably, but heavy *br. sh. 7.75 below prox. femoral*
no. 32348 shaft, Mancalla sp.?

MANCALLA no. 32364 prox. Mancalla? *large prox. end tarsometatarsus 14.55 br. (distal end 11.0 mm)*
nos. 32394 and 32395 Mancalla (check species) distal ends

1 Scapula ~~32383x~~

no. 32393 size close to dividing line but specimen broken

1 Coracoid

no. 32376 upper end sp.?

2? Femur

no. 32375 small prox. but probably M. diegensis

no. 32374 large distal end that has internal surface of internal
condyle depressed; may not be Mancalla (Loc. 65120A)

Similar to #2694 from San Diego local. 4227 Both are larger than those recorded at 1970
br. dist 2694 = 12.5 mm, br. dist end 32374 = 11.7 mm. Largest recorded at 1970 = 11.0 mm
diegensis

Add 65121

* ✓ check with 65121 tarsus #31614
and " " radius 31620

El Toro Niguel - San W. areas
Pliocene loc. Miocene loc.
VII-10 65120 ✓ 1945 ✓ VII-11
65121 ✓ 3172 ✓
3183 ✓ 6902 ✓
3184 ✓ 6906 ✓
7059 ✓ 3221
7134 ✓

Locality 65120 continued (2)

Copied

1 Alcidae: Coracoid (~~small~~ ^{length to proximal 22.7, bitriose canal 3.9, depth glenoid fossa 4.5}) no. 32344 resembles *Certhiura* (e. dubia?)

2 Podicipedidae: Distal 3/4 tarsometatarsus no. 32371; prox. tarsus ^{locking + no. 32363?}

4 Procellariidae (Puffinus):

Prox. radius? no. 32365 (ident. to be checked)

Distal radius no. 32372; and (ident.?) no. 32396

Proximal ulna no. 32373

1 Sulidae: shaft toward prox. end humerus no. 32360 (check ident.)

10 Still to be identified:

Ulnae: frag. dist. 32352, 2 prox. 32355 and 32356

Coracoids: ~~v32376~~ 32377, 32378 frags. (check for *Mancalla*)

Tarsometatarsus: ~~xxxxxxxxxx32364xx(checked for Mancalla)xxx~~

incomp. dist. no. 32362; dist. troch. 32361

Tibiotarsi: shafts: 32357, 32358, 32359 (check last one for *Mancalla*)

The rest are phalanges or scraps

32345 large vert. centrum

32346 pedal phal. Sulid?

32347 unident.

32349 bird?

32350 pedal phal.

32351 dist. carpal

32366, 32368, 32369 pedal phal. frag. Sulid? for 32364

32370 wing phal.

Gave #32363 prox end tarsometatarsus with frag. dist. trochlear

copied

Locality 3183 (Calhoun's Hill B, Leisure World) CASE VIII-10 (2) *Pliocene*
Pliocene, Capistrano fm. Hemphillian Eight bones
UNNUMBERED

All Mancalla except one large Biomedea tibiotarsus ~~xxxxxxxxxx~~
and an undientifiable fragment

- 2 Mancalla cf diegense
prox. frag. humerus
dist. frag. humerus

Megapalaeodus II 51924

- 4 Mancalla milleri:
2 small ulnae
1 small shaft tibiotarsus
1 small shaft femur (Mancalla?)

Locality 3184 (Crown Valley Parkway) CASE VIII-10 (2) Three bones

Pliocene, Hemphillian
UNNUMBERED

~~THREE SPECIMENS~~

- 3 Probably all Mancalla
M. diegense?

ulna, length 28.9, br. prox. 6.2

M. milleri?

prox. femur, br. 9.4, depth 7.5, br. sh. ~~4.1~~ 4.1

Mancalla sp.. scapula, prox. br. 12.9

Complete Mancalla skull (1974)

Locality 7057 Leisure World, 1970 Plio, Hemphillian

- ① Dist. left tarsometatarsus 32342, M. milleri br. dist. 8.0mm.
shaft edges sharp, and shaft ~~straight~~ straight

ONLY SPECIMEN

7
Miocene
CASE
VII-11

Locality 3221 El Toro materials co. quarry Larry Barnes loc. 954
no. 39560 incomplete large coracoid. Could be Mancalla but
too large for M. diegense?

ONLY SPECIMEN

July, 1977 - checked with
Prasmanacalla vietnami
coracoid from loc. 6902
The two coracoids are
very similar

Mancalla from Laguna Hills localities (27 bones)

- nr 7.2 Locality 65120A (bones unnumbered) (Calhoun, Nov. 1965)
- 32381 1 nearly complete left tarsometatarsus
 - 32388 1 distal end right tarsometatarsus (possibly same indiv. as above)
 - 32379 1 shaft right tarsometatarsus
 - 32394 1 distal end humerus
 - 32386-32387 Right and left complete ulnae (or nearly so) NOT same individual.
 - 32384 1 Left eroded ulna
 - 32382 1 Right proximal half ulna
 - 1 Left distal half ulna
 - 1 Right and left distal ends tibiotarsi (not same individual)
 - 1 Fragment of scapula

- original list checked
normal malleo
- 4 Locality 65120 (bones unnumbered) (Calhoun Nov. 18, 1965)
- 1 very large tarsometatarsus distal 3/4) may be different species
 - 1 left ulna
 - 1 right upper end coracoid (and frag of center of another coracoid)
 - 1 prox. 3/4 right femur

- 11 Locality 65121 Bones unnumbered (Calhoun, July, 1965)
- 1 Right and left tarsometatarsi lacking prox. end (may be same indiv.)
 - 1 right prox. 3/4 tarsometatarsus
 - 4 right and 1 left ulna (1 lacks prox. end, another lacks olecranon)
 - 1 Right and left, badly eroded coracoids (1 younger than the other)
 - 1 prox. right frag. tibiotarsus

Locality 65120 graded terrace 1/3 mi SW of loc 65119 (65119 is top of Hill on south side of Aliso Creek and east of loc. 1945 (the site of Praemancalla). 65120 orange sand and phosphate pebble conglomerate in two layers. On line between E/2 Sec. 34, T 6S, R 8 W and Sec. 3, T 7S, R 8 W, Orange Co., San Juan Capistrano quad.

Locality 65121 1/3 mile SW of 65120 in NW/4 of NE/4 of Sec. 3, T 7S, R 8 W, Orange crossbedded sands, fine, gray silty sands and diatomite above.

Tarsus

nearly comp. left	loc 65120 A
dist end R	" " A
shaft R	" " A
very large dist 3/4	" " Af?
R/L tarsi (no prox.)	" 65121
R prox 3/4	" "

Humerus

Dist end	65120 A
----------	---------

Ulna

R+L (not 1 indiv)	65120 A
L eroded	"
R prox	"
L dist	"
L comp?	65120
4R, 1L etc	65121

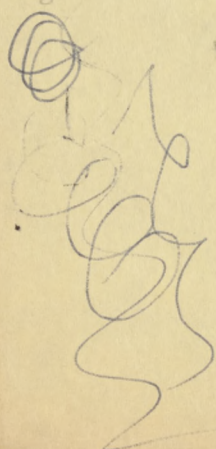
Tibia

R+L dist (not 1 indiv)	65120 A
R prox frag	65121
scap frag	65120 A
coracoid	
R upper	65120
frag center	65120
R+L eroded (149)	65121

Femur

R 3/4 frag	65120
------------	-------

5/17
487
1404
5/5
585
513
515
515
1820



837
24
823

Aug 1983

See Cedar 22

tibia L Acum 15422

tarsus 15423

newborn large tibiae Lc 4672 (eg 30 A-F)

Br. dist 17.6 (21.8 = Br. dist end Mega pal. connectus) ⁸¹⁹⁰ _{dist} ⁸¹⁹⁰ _{tarsus}

Br. dist tibiae Phaeicp. ruber 14.8 (Br. ~~dist~~ tarsus 17.6) ⁸³⁷⁰ _{tarsus}

21.8 | 17.60
17.49
16.00

17.4 | 14.80
14.08
7.20

newborn tibia 17.6 - Lc 6688 tarsus 20

20 | 17.6
16.0
1.60

STORK

Tibia (new) from 4672 | Sg 30 A-F

resembles Phaeicpterus in contrast to Palaelodus

in large excrescence ant'ly adjacent to side

Stork ~~to dist~~, however at the external edge of the shaft
not inset as in Phaeicpterus ruber (151431)

Internal condyle internal view deeply excavated with
prominent tubercle as in Palaelodus goliath

Depth int goliath 18.4 ^(depth 9.6) Shuckbott Hill 21.9 (depth 11.9)

Ext. view ext condyle ~~depth~~ ^{higher} relative to ~~depth~~ ^{prev. dist} ant-post depth

Then Palaelodus ~~Phaeicpterus~~ goliath ant-depth 16.5 ^{ext} ~~int~~
4672 " " 20.9 ext 14.9

Same meas. Phaeicpt. ruber

int cond depth 17.9, 18.4 ht } depth tooth 17.9
ex cond " 17.9 8.4 " } Br. ant end 15.0

Br. dist end 4672 17.6 (depth 21.8)

Br. " " goliath 17.4 " 18.4 from photo in mine Cedar ^{fig 3} ^{fig 8}

Palaelodus ambiguus Br. dist 12.1, depth 13.1

ext cond. depth 11.9 (ht 7.7)
int " depth 13.6 (ht 6.7) from cast

50621 Cast of tarsometatarsus (original from
UCMP coll from Sharktooth Hill V6843
Dent. by Morgan as ~~Chelonic~~ Presbytich 86039

Distinguished from Auseriformes

① Trochlea for digit 2 projects further ~~partially~~
(is notably deeper ant-~~partially~~ than prox-distal)

② Distal foramen is ~~centered~~ higher above distal
end and more median in position (almost

directly over the middle trochlea

③ Prox. distal trochlear 20.1 (but external surface)
Its ext trochlea is not complete depth 20.0 ant.

Gr. in Baya Calif. $\frac{65148}{15423}$ 19.4 (depth 20.5 int.)

Gr. holotype Mel. concolor 21.9 (depth 22.1 int.)
^{TP. alaculodius also}

4 shaft narrower + more round (not flattened) (true of flamiger from 16)

④ Internal trochlea projects more markedly from the
shaft proximally than in either of the other
(the internal bordering ridge of the trochlea
is prominent)

	50621	type	ceder
Prox. mid troch	7.75 7.75	9.0	8.7
q. br	19.8	22.0	19.0
Gr. troch 2 + 3	7.9	6.8	6.6
from top of 1 to bottom of 2	19.5	20.7	22.8
from tip	20.3	22.5	24.0

Try Megapalaelodus

✓✓

Haupfavian Pliocene

Sahibshahi

	Leiman World Loc LACM 3183	Sevin World Loc 7057	Sevin World Loc 45120	Sevin World Loc 45121			Crown valley Pachy loc 3184	Cor. del Pachy Co. loc 1067	Crown del Pachy Co. loc 1729	El Toro Co. loc 3221			Baja Calif.	Roma Mex.	San Mex.					
Quaridae	—	—	Prox ? tarsus	Humus ulna circulati	—	—	—	—	—	—			—	—	—					
Apes	—	—	dist tarsus	—	—	—	—	—	—	—			—	—	—					
Commut	—	—	—	—	—	—	—	—	—	—			—	P. ulna	P. tarsus					
Shag. water																				
P. fathani	—	—	—	—	—	—	—	Humus tarsus quadrati wiphal	—	—			—	—	—					
Petridae	—	—	—	—	—	—	—	—	—	—			2 tarsi	—	—					
P. sp.	—	—	3 radi pachy	dist ulna	—	—	—	—	—	—			dist hum ulna	—	—					
Sulidae			Shall humus	dist tibia	—	—	—	—	—	—			dist humus	—	—					
Magapal actodius	dist tibia	—	—	—	—	—	—	—	—	—			dist tarsi ulna	—	prox tarsus					
Goose				dist radius	—	—	—	—	—	—			—	Prox dichro	Exanochus	chicks relatively o Brenner to Sheldrake				
Alcidae	—	—	Small corac	one tarsus	—	—	—	—	—	—			Crown 2 tarsi ulna	—	—					
					—	—	—	—	—	—			ulna pachy up, corac	—	—					
Alcedae	—	—	—	ulna pachy corac	—	—	—	—	—	—			frag Crown, r humus	—	—					
Mauca	2 hum. 2 ulna 1 tibia	dist tarsus	9 ulnae 3 tibiae 1 hand 1 radius 2 humus	5 tarsi tibia 2 corac 5 ulnae femur?	—	—	ulna femur scap	Corac Crown humus ulna radius tibia	Corac	long large crown			many Crown, r humus	—	—					
	1 femur		Scap Crown tibia	long radius	—	—	—	—	—	—			—	—	—					
			very bald tarsus	2 large femur	—	—	—	—	—	—			—	—	—					

	No. Est. No.	Upper California Luzon (Wals)	Pliocene Crom Valley	Lower Wals	add 65119 65120	65121
	3221	3183	3184	7057		
Marcella?	larger coracoid 34560	—	—	—		
Man. dig.	—	prox + dist humeri	ulna scap (h.s.)	—	7 ulnae 3 tibia, tars (3)	
Man. milleri	—	2 ulnae, tibia femur	prox femur	tarsus 32342	2 ulnae 2 hum, scap, ulna coracoid, femur 3 tarsal	Manus
Man. calidensis	—	—	—	—	—	—
Dimedea sp.	—	dist tibia	—	—	—	—
Grake	—	—	—	—	dist tarsus 32511 32363 prox tarsus	humerus 31620 ulna 31618 cora. 31617
Loon	—	—	—	—	152365 3 radius 32372 1 ulna 32373	ulna 31619
Puffins	—	—	—	—	32360 Pinnacles West	tibia 3631
Sula?	—	—	—	—	—	ulna humerus carpus tarsus
Alcid	—	—	—	—	—	radius
Goose	—	—	—	—	—	—

PLIOCENE

Quadrant Bones

Loc. 45120 prox tarsi 32363 (size of h 4.7, g. of p 4.3)
(Depth 4.6, 6.3 " 5.2, 7.1)

Loc. 45121 upper end coracoid 31617 (B. Tro. Canal 6.1, g. of p 8.7)
Ht from scale 16.0 " 11 21.2
faint

Loc 45121 distal humerus 31630 (h. condyles 11.1, g. of p 11.7)

Loc 45121 prox ulna 31618 (h. prox 8.7 mm g. of p 11.1
h. ch. 5.0 " " 6.1
depth prox 8.3 mm " " 10.8)

Maucaallinae? Large

Loc. 45121 radius 31620 (Depth 37.5) Pymies 52.0-53.8

Loc 45121 prox femur 31636 (P. prox 149 depth 11.6) Pymies 14.9, 11.0

Loc 45121 " " 31637 (.. 114.8 .. 113) " "

Loc 45120 prox tauris 32364 (prox h. 13.1, Pymies 13.0-13.2)

In loc 65121

There are 4 tarsi (31616, 3233³, 32334, 32337)
3 ulnae (31923, 32338, 32339, 32349, 32341)
1 prox tibia (32332)
2 coracoids (32333, 32334)

That appears to agree with *Mauicalla diegense* in
size & characters,

BUT Two prox femora (31636, 31637) and
one complete radius 31420

Are definitely too large for any previously
known *Mauicalla* specimens of these elements.

It would be impossible for the radius to belong
with the ulnae above noted as agreeing with *diegense*
as the longest ulna is 30.5 mm, the radius 37.5!!

The only other humerus (aprox # 31629) is 16.9 mm prox.
between *diegense* & *milleri* and resembling
these albirds rather than *Mauicallinae* (Not Lunda)

La 3183 Pluvium

Megalopalodius, sub. telus 51926

h. Br. ant. lg.	21 mm	m. connectives thicker squared	Cedion telus
gnathop.	19.8	17.0	—
		18.8	—
br. shallow condyle below eye socket	14.3	12.2 ?? from telus	19.7
br. foramen below bridge	15.9	14.0 ?? from telus	15.35

3183 Y Foramen below body ornae (formed as connectives) but
Set of squared at ends (oblong rather than square)
Cedion Foramen ornae with upper lip slightly peaked

- 6183 {
1. Internal view of internal condyle very similar to
telus of M. connectives - deep distal cut + hook post'ly.
 2. Intucondylar sulcus divided into 2 parallel furrows
by a low rounded median ridge as described for
 3. M. connectives by L. Miller 1950 p. 71. Said to be true also of
Palaeodius.
 4. Int. condyle swells internally just out to the ^{dist} notch
This occurs also in M. connectives (even more strongly)
+ in Palaeodius.

The specimen (tibia) from Cedion is broken through the
prox edge of the bridge + both condyles - so comparisons
are difficult. It is supposed, however, that the bridge
is less sunken + the intucondylar furrow (ant) less depressed.

Megapalaeodus

51924 - distal left tibia locality 3183 "Lusine world"
(Pleocene)

gr. dist to 20.8 mm

ant. " 19.3 mm

dist depth 20.5 mm

depth ext 19.7

depth with 20.8

Gr. the above bridge 3.1

least ht bridge 6.0

Gr. dist. of joint 5.3

below bridge

distance from

top of protuberance 6.35 gr

corner bridge 3.9 least

Gr. dist. at the point of joint 4.4

Gr. dist. at the point of joint 6.9

broken, but at least 5'

5.1 Cedron specimen

6.1 Cedron gr

2.2 " least

4.6 Cedron

Gr. at level of lower rim of foramen below bridge

The protuberance is situated higher in the 3183 specimen than in the one from Cedron. In the latter, the distal tip of the protuberance is about on a line with the lower ^{rim} of the foramen below the bridge; in the 3183 specimen it levels with the upper rim.

Since the dist. tips of both condyles are broken in the Cedron specimen it is difficult to compare the two. I believe, however, that the bridge in the one from 3183 slopes more post'ly, i.e., is more inset from the ant. edge of the shaft. Since the upper edge of the bridge is ~~not~~ broken away (missing) in the Cedron one, it is hard to make the comparison. The 3183 bone seems to suite in more depth 9.7 as compared to 11.0 in Cedron.

Orange County sites

from Barnes Systematic Zool. Vol. 25 no. 4, 1974 pp. 321-343
on Outline of Eastern North Pacific Fossil Cetacean Assemblages

late mid Monterey fm - "El Toro District" (Loc. 3172 T 1945) Loring World
6 sps. ~~unseen~~ Cetacean
Capistrano fm "El Toro District" → Cetotheriidae 1
Balaeidae 1
Balaeutidae 1
Phocaenidae 1
Odontacis 2
late mid to Early Pleist. upper part Capistrano fm "El Toro District"
late Pleist. Niquel fm San Juan Capistrano

Downs' pinniped from Laguna Niquel area in 1956

the Ear bone from 3172 of whale associated with Desmostylus, Allobur,
Imagotaria + roelasytherium + birds (Sulidae)
only 70 bones near 6512 D - 65121
T at 1st place with it.
across Aliso Creek from loc 1945

See Wade Miller for Pleisto sites in Orange County
Newport Bay mesa includes 2 whales (scant material)
Beach + terrace deposits "poor environment for cetaceans"

See also Howard re Newport mesa

3183 over
^ 3184, 3185, 3186, (3891), (7057)
HS

3891 Blaucau

76 10 gavis, rest gulls,

76 1 all gulls except 3 Puffins

74 (4 Puffins) 8 Cormorants, 4 moths, 2 ducks, Talonifum?, 2 Gulls, 1 quail?

1 gull, 4 auklets, 48 mancalla

78 mancalla

74 mancalla

89 30 mancalla, 3 auklets, 36

77 over

77 4

406

mammals, terrestrial birds

4517 - new loc. m. 3891 Loring says about 200 fish bones,
no land mammals in 4517 but there were some in 3891

Phil 3 (3184) Maucalla 17, ^{includes shell} Ave 2 ~~1744~~, Crom Valley Rhinos
 3 (3184) Gavia 1 (Trabuco Rd El Tiro) 1 Amphibia, alid 2
 "Mission Viejo"

Phil 5 (3184) Maucalla 4, Megapalocladus 1 Sesuvium wald 1

Phil 1724 Coma del Ma. - Maucalla

Phil 324 La Maucalla (3) Mauc El 400 materials Co. Quarry

Phil 104 Maucalla 13
 P. felthami 1

C. M.

Phil 65121 Gavia 3, sp 7 total 10

Phil 65120 76 Gavia 1, Gube 1, Puffin 1
 Maucalla 23, sp 11 + 6 + 14 = 31
 " 14 alid 5

Phil 4517 new loc. Mission Viejo 1979

8891 606 total, Gavia, Gube, Puffin, Cormorant, Culit, duck, quail, eagle?
 1973
 quail, Gull, Gull

Phil 3172 } Sesuvium 1200 in 1945 (120 idem, 1946-)
 1945

Phil 6906 }
 6902 } 51 bird bones
 6901 } 39 ident to 7 families
 Montm 7136 }
 also 7185 }
 Don't know

Gelbus from Loc (Orange lo) 3891

comparative San Diego

Super

Senora	Length	S. Diego	11570	38.0	greater (ext)	42.0	
			11570	36.1	least (int)	39.2	
			11571	10.9	dist breadth ant	12.5	11.0
				10.6	prox br, facet to head	11.4	
				4.6	shaft br mid	4.8	4.15
Loc. 3891	no. 117983			5.4	shaft depth mid	5.55	5.0
				41.2	117984, cant meas		length
				39.2			
				10.5			
				10.6		11.0	
Loc 3891	no. 117972			4.5		4.5	
				5.28			
				39.5			
				10.8			
				4.2			
				8.3			

Total 7 bones femora for 3891 all appear to be same species

Loc 3891	Tarsi	118033	118032	118020	118019	118021	San Diego 115170	TYPE
118034		56.4?	—	59.7	—	—	59.5	—
① gr. ext	55.3	—	—	—	—	50.6	48.8?	47.0
② prox end of tibia	46.3	48.2	52.6	50.4	—	—	3.2	3.0
③ br. sh	2.7	2.8	2.2	2.9	3.1	2.9	?	—
④ br. prox	9.5	—	—	—	—	—	7.0	6.7? photo
⑤ br 2nd phalanx	6.15	6.55	6.5	6.6	—	6.0	5.1	5.0
⑥ sh depth ext	4.3	4.7	4.5	—	5.35	4.8	—	—
San Diego								
Loc 1071		1075	1075	1080	1080	1080		
118034	①	63.9	63.3	67.4	57.0	—	—	—
	②	52.7	—	52.0	47.4	54.2	—	—
	③	3.4	3.5	3.15	3.1	3.5	—	—
	④	11.2	—	10.7	9.8	—	—	—
	⑤	7.3	—	—	6.6	7.5	—	—
	⑥	5.7	5.4	5.5	4.7	5.6	—	—

+tib tarsus 115170

dist depth ext : 9.0

117995-8.

$$\begin{array}{r} 9490 \\ 79 \overline{) 750} \\ \underline{711} \\ 390 \\ \underline{316} \end{array}$$

$$\begin{array}{r} \text{felt} 88) 850 \\ \underline{792} \\ 580 \\ \underline{548} \end{array}$$

$$\begin{array}{r} \text{new } 82) 810 \\ \underline{688} \\ 220 \end{array}$$

Gr. d. d. h. m. n. felt 8.5

Komak 8.0 max (7.3 - 8.0) d. p. 7.1 - 7.6

$$\begin{array}{r} \text{felt } 8.5) 8.00 \\ \underline{745} \\ 350 \\ \underline{340} \end{array}$$

$$\begin{array}{r} 85 \\ 8.5) 7.30 \\ \underline{680} \\ 500 \\ \underline{425} \\ 750 \end{array}$$

$$\begin{array}{r} 90 \\ 9.5) 8.60 \\ \underline{855} \\ 50 \end{array}$$

$$666) 581$$

$$\begin{array}{r} 113 \\ 52) 59 \\ \underline{52} \\ 70 \\ \underline{52} \\ 180 \end{array}$$

$$\begin{array}{r} 88 \\ 5.9) 5.20 \\ \underline{472} \\ 480 \end{array}$$

$$\begin{array}{r} 119 \\ 148) 1640 \\ \underline{148} \\ 160 \\ \underline{148} \\ 120 \end{array}$$

$$\begin{array}{r} 90 \\ 164) 1480 \\ \underline{1496} \\ 168 \end{array}$$

AMNH
#3570 Given by
Webster 1937

Opelbia ferricola of *C. parvus* (?)

Type *C. parvus* *Arch. a.* *C. holbrooki* San Diego
3672 479 540 524 671 2130 226.7 2187 226.5 2517 2239 7520.
47.0 — 60.4 65.7 51.3-53.2 — 56.4 53.5 52.6 55.4 — 52.4?

Tarsomela.
Length from distal tip
hypodermis to mid
trabecula

Secret b. sh

Depth ext. cond.

Op. length
to intercostal

or prox.

3.0	3.0	3.2	3.5	3.4	3.5	—	3.1	3.4	3.4	3.4	3.0	3.1	—
5.5	5.0	6.2	6.8	5.9	6.1	—	—	5.5	—	6.0	—	—	—
—	—	71.8	77.4	61.9-63.9	—	—	67.5	63.3	63.3	—	—	—	—
—	—	12.1-12.6	11.7-11.8	10.4	10.8	—	11.4	—	—	—	—	—	11.0

Length Shufeldti

Type 56 mm imm.

@ Shufeldti 1915

p. 136 and

allus.

Island World 65120 Capistrano fur. Ellis

Case 11-11

drawn 5-

Alcedo

- 32344 - tiny coracoid - alcedo in same tray
 32345 - centrum of vert, very large (not same kind as 32345)
 32346 - pedal phalanx (sulid?) same tray
 32347 - ungual " " ✓

X 32348 - shaft tarsus (Maucaella?)

32349 - doubtfully but

32350 - inc pedal phalanx (dist?)

32351 - dist carpo. ?

✓ 32352 - frag. dist ulna

✓ 32353 - prox ulna

✓ 32354 - " " (smaller)

✓ 32355 - shaft of large tibia

✓ 32356 - " " small "

✓ 32357 - dist part of tibial shaft (could be Maucaella but unidentified)

✓ 32358 - shaft humerus try Sulid

✓ 32359 - dist tibia, tarsus

✓ 32360 - inc dist tarsus humerus

X 32361 - prox tarsus grebe or loon ✓

X 32362 - prox tarsus try Maucaellidae ✓ large + bulbous

X 32363 - prox radius try Puffins?

32364 - shaft pedal phalanx (long + slender) may be sulid

32365 - pedal " sp?

32366 - " " sp?

32367 - " " sp?

32368 - wing phalanx

grebe X 32369 - dist tarsus - grebe

Puffins X 32370 - dist radius } Puffins?

X 32371 - prox radius }

X 32372 - dist femur Maucaella

X 32373 - prox " " smaller

X 32374 - upper end corac. " " ✓

✓ 32375 - frag. " " ?

✓ 32376 - shaft tarsus Maucaella?

X 32377 - dist " " ?

X 32378 - dist tarsus + shaft Maucaella?

64110

X 32382

X 83

X 84

X 85

X 86

X 87

X 88

X 89

old meas before #2's
length 26.3, 27.0, 28.4, 30.4, 30.5
delt 7.2, 8.5
another delt 8.8 (midlength)
one dist br. 2.0 another longer

ulnae of Maucalla

Copied numbers
but not in detail

X 32390 prox ✓

X 91 dist ✓

X 92 dist ✓

tibiae Maucalla

X 32393 scapulae ✓

X 32394 dist hum. ✓

X 95 " " ✓

X 32396 " radius ✓ Puffin?

unmarked
brags 12 in 2 trays

" 8 in 2 "

Loc 65121 Cont'd Case VII-11(6)

X 31639 - dist tarsus

31640-43 - traps (humeri?)

32322-24 - pedal phal.

X 32325 - frag dist tarsus

X 32326 - dist radius (Sore?)

32327-30 - pedal phalanges

X 32331 - ant. carpal (prox process)

X 32332 - prox tibia Maucalla?

X 32333-34 ant. cora. "

X 32335-37 - tarsal Maucalla

X 32338-42 ulnae "

unident traps

Length 29.5 prox 6.5 32341

30.1

6.2 32340

Size for

30.4

6.3 32339

depth
but depressed
by obscuring
deeper
(as in muller)

Copied numbers
but not in detail

X 31616 - prox tarsus - Maucalla eyes

X 31617 - upper cora.

X 31618 - prox ulnae (2 sizes) (NOT Maucalla)

X 19) dist ulnae (2 sizes) But like Maucalla ✓

X 31620 - radius - very long

31621 " shaft sp?

31622) pedal phalanges sp?

23) with " X

31624 tibia dist tibia

31625

31626) 2 verte

27)

31628 unequal

X 31629 prox humeri (tiny Maucalla)

X 31630 dist " (smaller than breadth condyle H.2)

X 31631 " tibia " (smaller than breadth condyle H.2)

31632 pedal phal.

31633 frog mand

31634 quadrate

X 31635 - small complete ulna

X 31636 - traps (femur?)

X 31637 - prox femur (Maucalla?)

Loc 65121 Case VII-11
Drawer 6

Copied numbers
but no detail as to
elements
See white page #9

10.8 mm from cond to
top of last for ant. leg.
(12.8 in homaldae)
d.

Leisum Wold Phoenice(?) localities measured 1969-70

Loc 65121 Oranacalla

	R ulna diegenae	}	July 1965
Size?	L " coracoid milleri sp? (contours eroded)		
7.7 br. ant. gulf	R prox tibia diegenae		
Size?	L tarsus diegenae		
9.3 prox end	3/4 L tarsus (prox) diegenae		
38.2 mm long	3/4 R tarsus (dist) diegenae		
5.0 br. sh	3/4 L tarsus (mid) diegenae		
10.2 prox br.			
4.6 br. sh			
4.9 br. sh			
30.4 length	R ulna diegenae		
30.6 "	R ulna diegenae		
29.7 "	R ulna diegenae		
8.5 br. prox. end	L prox tibia diegenae		
5.1 br. below joint	R coracoid diegenae		

10.22 to 5"

Loc 65120A

	L ulna milleri	✓ 7.5 depth prox
	R " milleri	26.3 length
	L " diegenae	✓ 8.5 depth prox
	L " (vic diegenae)	27.0 "
	L " (vic) diegenae	✓ 30.5 "
	R prox diegenae	✓ 28 +
	dist humerus diegenae	28.5
	R coracoid diegenae	✓ 30 +
	L dist ulna diegenae?	depth prox 8.8
	R tarsus (middle) sp?	br. dist 7.0
	dist tibia diegenae	15.16 ht upper end
	" " (very eroded) sp?	7.1 br. prox. joint
	R dist tarsus sp?	large sp?
	R prox 3/4 femur milleri ^{looks like diegenae but small}	5.0 br. sh
	R coracoid	9.0 br. dist?
	scapula milleri?	7.5 " ?

8.6 br. dist.
5.0 br. mid
= milleri
7.2 depth prox
8.1 below joint
11.3 br.

Maurallinae

6.5.12.1

Loz 65121

3 ulnae 32339-32341 size ok for diegens but deeper depression

1 ulna 32338 - mc, ulna adjacent to olecranon in middle

31636 prox femur - longer than any others & straighter

31637 " " " " " "

31620 radius length 5.3, dist 5.6, shaft 2.8 x 5.8

6 hand { 32325 frag. prox tarsus size ok for ~~diegens~~ but not unusually large
32336 tarsus 38.1, prox 9.3
32335 + 32337 tarsus unmeasurable (5.8 + 6.9 dist + 2 dist condyles 32335)
31616 prox tarsus bc. prox 10.0 mm

31617 mc coracoid

32333-32334 - two mc coracoids (34 size ok for diegens, dist irregular for all by this canal edge not inset) 32333 size ok for middle but maybe yg

32332 Pterygoid 7.7 mm. = diegens?

Loz 65121 Alcedidae

31629 Prox humerus size ok for Oria but different # 31629 (NOT Lunda)

31639 dist 3/4 tarsus small Certhiina? Check with 1021945

31638 complete ulna " (smaller than Brachypterus)

Loz 65121 Sulidae

31636? Tibia (dist) Momus?

Loz 65121 Gorge

32326 - dist radius

See 45121

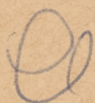
Case 11
drawn 4

Dec 4, 1973

Manicellinal ~~large~~ prox end tarsometatarsus 31616 ✓
" very long radius 31420 ✓
" tarsometatarsus 32325 ✓
" " 32335 ✓, 36, 37 ✓
" " 32332 ✓
" prox tibia 32333, 32334 ✓
" coracius 32338, 32339, 40, 41 ✓
" ulna 31636, 31637 ✓
" 2 large prox femora

ulna 32334
femur 31637

ulna 32339
32340
32347
30.1
29.8
6.2
6.5



Alcidae?

too small for
Ptychoramphus
Brachyramphus
Rhyacionia
larger than the above

Very small complete ulna 31635 (31.35 length, 3.4 depth ext. edge trochlear
4.0 br. prox. 2.4 br. dist. trochlea.
1.8 br. shaft middle, 2.2 depth sc.)

Prox humerus

31629 (NOT Lunda) 16.75 prox br

One tarsometatarsus (shaft + broken dist. end) small ± 31639

Try Cerorhinca (as per report on 1945) size OK for Lunda

Cerorhinca dubia

larger than
above listed
under ulna
NOT Cerorhinca

Carphometacarpus lacking distal end 7.35 depth prox thing M. process int.
#32331 30.8 = length of fragment 6.60 " " " " ext
specimen without 5.8 lat M. process
dist. end 3.2 br. prox trochlea
27 br. shaft

~~The Coracoid 32344 (22.7 length process dist. end; 3.9 br. trochlear cond.;
4.4 depth glenoid facet)~~

Sulidae

Distal tibiotarsus 31631 (dist br. ant. 12.1) MORUS not Sula

Puffinus ?

2 species prox + dist ulnae 31618 + 31619 respectively
larger smaller

Gavia? prox. humerus 31630

vic coracius 31617

Goose? Distal radius 32326

31618 Gavia
31619 Puffinus (transverse process)
6.5 gr. dist. br.
about as in P. puffinus
shaft 31.637

br. condyle 10.9-11.0 (close to G. nivalis or G. pus.)

dist br. condyles

very small (not same as humerus which
is large br. 5.9-6.6
G. nivalis 2.2-2.3)

Gavia (concinna?) size larger than *G. lomadae*
humerus dist # 31630 for condyle h. c.

Gavia sp. very small, smaller than *stellata*
purr ulna 31618
upper coracoid 31617

Puffinus (harrisi?) per size?
dist ulna 31619

sp? Phalarope 31652

Unident 65121

(* = possibly mislabeled)

✓ 31621 humerus

31622-23 pedal phalanx

✓ 31624 wing

✓ * 31628 dist. tarsus tibia

✓ 31626-27 - 2 vertebrae

31628 ungual

✓ 31632 pedal phalanx

✓ * 31633 jaw mandible

✓ * 31634 quadrate

✓ * 31649 41, 42, 43 fragments (humeri?)

✓ 32322, 23, 24, pedal phalanx

32327, 28, 29, 30

✓ Hammer & Raschke

LGB 3891

Mission Viejo June 1975 - Mamealla
Ploere

LGB 1322 5/21/75
est length humeri
prox left humerus prox br. 19.1
" rt. 3/4 " " 15.9 depth sh. 9.1
" left 3/4 " " 19.3 (separate vial)
Same data

left carpometatars
length 30.1
right 12.2
separate humeri
length est 47.40?

fever length inc. 47.7
add about 2-2.5 mm? = 50.2 mm?

RWN 7511-D/5/25/75

nealy comp. rt humerus

length 42.9
prox br. 15.0
g depth sh 8.0

Same data as above RWN etc.)
(separate vial)

Complete cranium (Right)

length 39.8 millen

br below 9.1
prox. part 14.1 - 17.9

under length only
longer water + Odano

type diagnosis cast with 54.0, sh 4.6
br. dist 10.4

5/15/1975 Two rt humeri
with length 56.6 + 55.6
br dist 10.8 + 10.5
approx 59.0 + 57.7

diagnosis
rt cadaver (nos. 118201 and 118262)
for orig sh. 9.8 5.0

Make Hammer

LGB 1322, 5/16/75 left femur

length 52.8 mm. prob. by diag. size (118207)

br dist 10.3 judging from br. sh 4.1

ext left 35.2

RWN 7511-12, 5/25/75

inc. coracis (st)

br below 5.2

prox. part 5.2

length from 14.1 - 17.8 millen?

below/Scapular part

Same RWN data as above (separate vial)
5/26/75

Comp tarsometatars

length 35.5

prox br. 8.7

Humeri 62.2 millen?

diag? 76.4 +

millen 59.5+ (with dist set)

Carpometatars 30.1 millen

Tarsometatars 35.5 millen
39.3 diag.

Femora 55.6

56.6 } diag?

52.8 +

50.7 - millen

Coracis 39.8 millen

ulna 28.3 or 24.5 millen

28.4 millen

Length prehe tarsus

61-62 mm est.

from 2 specimens

dist 9/10 ① RWN 7511, 5/26/75

prox 9/10 ② Hammer & Raschke LGB 1322
5/21/75

prox br 10.6 - sh 3.0

dist br 7.6 sh 2.9

Length g ② from distal

top of hypotarsus to trochlea
57.5 mm. (P. parvica 47 mm)

Prehe femur length 39.8
(Hammer & Raschke LGB 1322)
5/26/75

Mission Viejo collection of 1975 (as sorted Oct 1975)
Placenta Some still inserted136 *Mauacalla milleri*

- 20 Humeri; 6 complete, 3 prox (good), 4 prox (poor) & distal
 19 Coracoid, 3 comp., 16 uncom. (1 may be degenerate)
 14 Tarsi 5 m. comp. & uncom.
 23 Ulna 13 comp., 10 uncom.
 3 Radii 3
 6 Scap & spine?
 8 Sternum 5 ant. sp?
- Sacrum
 Pelvis 9 sp?
 Tibia 8 comp. - 8 uncom.
 Femur 14 (3 comp)
 Carpus 10
- 90
 +46
 44

304 *Mauacalla diegense?*

- 10 Humeri: 1 complete, 2 prox $\frac{3}{4}$, 2 prox, 4 uncom., 1 distal
 2 Tarsi: 2 comp.
 3 Ulna 2? comp., 1 uncom.
 5 Radii 5
 3 Tibia 2 comp., 1 uncom.
 3 femur 3 (2 comp)
 4 carpo - ~~4~~ 1 comp

and misc
 pelvis, vert
 phalanges (uncom)

1 M. calif. 13
 carpo. 1

Mauacalla
 mostly bones
 150

- 115 *Oryzops tarsi* 3 sp? (1 larger & more slender
 the other shorter & stouter)
 1 much larger (2 specimens only)

21 some
 uncom
 3 or 4 comp

27 tibial (sp less evident, none counts)

femur 16

humeri ~~9~~ 23 + scraps (1 comp)

ulnae 10

coracoid 5

carpi 2

pelvis & sacral frag 8

sternum 3

+ scraps

150 *Mauacalla*
 115 *Oryzops*

34 some genera

299 approx.

10 *Gavia* dist. tarsus (large)

four struts /

vent (axis)

prox ulna (see *G. conradi* type)

prox radius

Man carp radius (smaller than prox)

tibia (lacks prox) very narrow dist end

skin ration

2 pelvic faps

4 manus large prox humerus

" dist radius

sharp femur

vent

7 *Phalacrocorax* Tibia (lacks prox) P. Kennelli?
ulna comb (?) " "

3 sets

gray tarsus } adent?
carpo. }

7 *Puffinus* ulna
carpo
2 dist tibia
dorsal cora
vic cora.
ant. sternum

2 Dist sternal ant histiobones?
scap.

7 *Alcedo* Ceroclia - coracoid + tarsus vic.
Endonychia carpo + cora vic.

Psychorhamphus ~~lunatus~~ ? humerus + cora

1 *Sauria* - large straight tibia (too straight for *Mammilla*?)
coracoid

Procyon marine
Lus
3183, 65120, 65121

all
all
from 5/26

Wahlberg - Archangelsk report
Feb 1975 SV Bull

Bob Bakker - Sci. American for April 1975
Pitt & Jones 1975 [after 1975?]
[Larval feeding - all complete in MCZ]
June SV Bull 1975
April

622
4
2488